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ABSTRACT

The notion of differentially reinforcing low rates of undesirable behavior (DRL) is examined. Further, the status of the full session DRL strategy as alternative to punishment is questioned in context of a strictly operant definition of punishment. A reexamination of the data from some studies reveals the possibility that Ss respond to said DRL procedures as if to punishment. Finally, the value of a search for alternatives to punishment is questioned in light of the above findings and a shift in research emphasis together with more definitional clarity is recommended. (Author/SBH)

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FULL SESSION DRL AS AN "ALTERNATIVE TO PUNISHMENT" A THEORETICAL DISCUSSION AND REAPPRAISAL

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Full Session DRL as an "Alternative to Punishment"
A Theoretical Discussion and Reappraisal

The image of the behavioral approach to treatment as a "punitive" one is something which its adherents and practitioners often encounter. As such, the techniques and procedures associated with the behavior therapies have, in recent years, been subjected to increasingly close public scrutiny. Martin (1975) has examined some of the legal constraints which have been imposed upon the field, and it emerges that much of the public disapproval (and indeed, litigation) which he documents has been aroused by concerns initially felt about "punishment" procedures. As behavior therapy (via the issue of punishment) moves more into the legal and political arenas, semantic confusion surrounding terms such as "punitive procedure" and "aversive technique" appears to be at the root of much of the controversy. Perhaps this arises from the fact that, within the behavioral sciences, many construct labels are contaminated with meanings which have evolved through origin and use in the vernacular. Morse and Kelleher (1977) recognised this problem when they stated that "...difficulty results, paradoxically from our familiarity with numerous facts about the behavior of ourselves, other people, and animals. The interpretations customarily given to these facts lead to preconceived opinions which frequently interfere with the unbiased study of behavior." (p. 174). In any case, the existence of a controversy has prompted the investigation of "alternatives to punishment" (Deitz & Repp, 1973, 1974; Deitz, 1977; LaVigna & Donnellan-Walsh, 1976; LaVigna, 1978a, 1978b) before it has been established that the public outcry is, in fact, a reaction to the use of punishment in its technical sense. It is the position of this author that while some of the above mentioned procedures may be "alternatives to punishment" according to the layman's definition of that construct, they do not all appear to be non-punitive in the technical sense. This paper will seek to differentiate the lay and operant

definitions of punishment and then re-interpret the findings of some studies in the "non-punitive" literature according to a more exacting definitional standard. As a theoretical discussion, this line of reasoning is pursued for the reasons offered by Baer, Wolf and Risley (1968) with respect to "...making a body of technology into a discipline rather than a collection of tricks." (p. 96). What has been described as a controversy over the use of punishment might then be seen, in point of fact, as a reaction to particular types of punishment intervention, and not to punishment in its generic and technical sense. With such clarification, the practitioners of behavior therapy (especially those working with children) should in future be able to avoid the semantic pitfalls that the punishment controversy has revealed, and further research emphasis might properly be expected to fall upon the development of alternatives to those punishers for which there are ethical, moral, and/or clinical contraindications.

Definition of Terms

Sulzer & Mayer (1972) define punishment as "a procedure in which the contingent presentation of a stimulus reduces the rate of occurrence of the dependent behavior." (p. 293). This definition is very similar to most of the definitions of the operation found in the operant literature. Importantly, it identifies both a procedural and a functional element. Accordingly, for a procedure to qualify as a punishment technique, it must include the "...contingent presentation of a stimulus..." and demonstrate a "...reduc[tion in] the rate of occurrence of the dependent behavior". In defining punishment technically, this paper will adhere to these two basic criteria.

As a lay term, The Shorter Oxford English Dictionary (1968) offers the following definition:

> 1. to cause (an offender) to suffer for an offense; to subject to judicial chastisement as retribution or requital, or as a caution against further transgression; to inflict a penalty on. 2. to inflict a penalty for (something).

Here there is direct reference to an inferred subjective state in the "punishee" (suffer[ing]), and a generally more narrow sense of what punishment involves. Furthermore, the definition is constituted wholly in procedural terms, perhaps the most distinctive feature of the layman's notion of punishment. In any case, it could not be freely interchanged with that offered for use in the behavioral sciences.

Full Session DRL as an Alternative to Punishment

LaVigna & Donnellan-Walsh (1976) have documented a number of alternative strategies to punishment in use at the Camarillo State Hospital. These techniques have been applied to the inappropriate behaviors of autistic and mentally retarded adolescents and adults - truly a challenging population for any practitioner. Those authors mention, as have Bandura & Walters (1963); Azrin, Hutchison & Hake (1967); Azrin & Holz (1966); Azrin, Hake, Holz & Hutchison (1965) problems in the application of physical punishment procedures relating to "operant" and "elicited" aggression. These behavioral "side-effects" are of great significance in treatment planning and must be given careful consideration before (or if) a physical punisher is to be applied. These, together with the legal, ethical, and moral considerations explored by Martin (1975) prompted the investigation of alternatives by LaVigna & Donnellan-Walsh (1976).

One such strategy in the LaVigna & Donnellan- Walsh (1976) paper is the differential reinforcement of low rates of responding (DRL). A particular style of implementation described by Deitz (1977) as "Full Session DRL" is highlighted as being especially applicable as a non-punitive means of modifying the rate of undesired responding in the clinical setting. This strategy dictates that the delivery of reinforcement be made contingent upon the occurrence of fewer than a specified number of the undesired responses over a set interval of time. As behavior stabilises, the DRL upper limits (maximum allowable numbers of responses) are reduced. LaVigna (1978b) derives these DRL upper limits from mean response frequencies once behavior has achieved a steady state, emphasizing the importance of not reducing upper limits while behavior is still in transition.

An example of this procedure in clinical application should serve to illustrate. LaVigna (1978a, 1978b) initially identifies a base rate for the undesired response and then sets the first DRL upper limit at or near that level. The subject is then given a number of tokens, tickets or the like equivalent to that upper limit. Henceforward, as each undesired response is emitted, the subject (or therapist) transfers a token, ticket, etc. from one location (e.g. pocket, container) to another. At the end of the specified time period, reinforcement is deleivered provided that some or all of the tokens or tickets remain in an untransferred position. That is to say, reinforcement is made contingent upon the appearance of less than the number of responses reflected in the DRL upper limit (as evidenced by untransferred tickets or tokens).

It can be argued convincingly that such feedback is technically punitive. Turning to Sulzer and Mayer's (1972) definition of punishment, this full session DRL programme meets both the procedural and functional criteria. To the extent that certain overt actions of the subject or therapist are made contingent upon the emergence of each undesired response, it is clear that the intervention involves the "...contingent presentation of a stimulus". Furthermore, the fact that it is reported as being succesful in "...significantly decreasing the number of disruptive classroom behaviors..." (LaVigna & Donnellan-Walsh, 1976) satisfies the functional requirement of "...reduc[ing]...the rate of occurrence of the dependent behavior" (Sulzer & Mayer, 1972).

The punishment which this technique most closely resembles is response cost (Burchard & Barrera, 1972; Winkler, 1970). While the argument has been offered (LaVigna, 1978a, 1978b) that, by transferring tickets or tokens from one location to another (e.g. different pockets), an actual seizure of tokens is not accomplished (as in more conventional response cost programmes), the impact of these transfers on behavioral rate is identical to what functionally defines punishment. Indeed, the author questions whether the distinction between the transfer and the removal of a token is even meaningful. Of greatest significance is the existence of a contin-

gency between behavior and consequence; while a token seizure or transfer may in fact represent the removal of an object, if done overtly, the action itself still qualifies as a contingent stimulus event.

Deitz & Repp (1973) conducted two experiments with retarded subjects where low rates of certain types of unacceptable behavior were reinforced. The results were most dramatic and encouraging. Later, they replicated their findings in a second series of experiments (Deitz & Repp, 1974) using normal subjects and secondary reinforcers. These authors specify that subjects were not informed of the accumulation of responses, but importantly it is stated that the DRL upper limit and contingent reinforcement were made known to the subjects prior to the first session of treatment (Deitz & Repp, 1973). As such, the intervention is executed in a somewhat less concrete manner that is LaVigna's (1978a) where there is response contingent ticket or token transferring. However, it is this author's view that, although less concrete, the Deitz & Repp (1973, 1974) interventions work in the same fashion as do those of LaVigna (1978a). While moment-to-moment feedback was not provided the Deitz & Repp subjects, it is suggested that the awareness of a contingency between undesirable responding and the stepwise loss of (access to) a reinforcer exerts the control visible in the data. When Deitz (1977) states that "...full session DRL is sometimes limited because it seems to rely quite heavily on the use of initial instructions to the subjects for its effectiveness..." (p. 110), he seems to be referring to the means by which awareness of this contingency is established. Similar explanations have been offered for the therapeutic effects of "self-monitoring" (Bolstad & Johnston, 1972).

It now remains to uncover some evidence that functionally, the technique meets the criterion of effecting a decelleration in response rate. It should be explained that Experiment II of the Deitz, 1977 study is excluded from this analysis because here the conventional practice of setting the DRL limit at or near baseline levels (cf. LaVigna, 1978a, 1978b; Deitz, 1977) was admittedly not followed. As such, this particular implementation of full session DRL is not representative and need not be considered. However, when examining the data from the

two Deitz & Repp studies (1973, 1974), one is impressed by the fact that, under the full session DRL treatment conditions, actual response frequency means are, in every case lower than prescribed DRL upper limits.

Insert Table 1. about here

In fact, the DRL allowable upper limits range from 1.09 to 12.67 times greater than actual response frequency means. By computing the mean of these "extra-limit improvement factors" it emerges that Deitz & Repp's (1973, 1974) subjects perform on average, 3.65 times better than is necessary to obtain reinforcement.

On that basis, the author feels that it could well be argued that the intervention is affecting the subject as would response cost. This would be at least one way of accounting for the discrepancy between the full session DRL upper limits and the actual response frequency means. In the case of Deitz & Repp (1973) Experiment I, the intervention does not make it more attractive to "talk out" .02 times per minute than to talk out .06 times per minute; the reinforcement applies equally to all rates beneath the .06 cut-off. We are therefore left with the task of determining what constitutes the incentive for this "better than necessary" performance. Response cost seems plausible - the subject strives to avoid symbolic diminution of his or her allotted quota of undesirable responses. Such a tactic is effective and easily applied, but clearly punitive in the technical sense of the word.

Discussion

The recent upsurge of interest in non-punitive behavioral strategies has led this author to an examination and reinterpretation of the findings of some studies in the "non-punitive" literature. Data collected by Deitz & Repp (1973, 1974) and Deitz (1977) have indicated that a full session DRL procedure similar to that described by LaVigna & Donnellan-Walsh (1976) and LaVigna (1978a, 1978b) can be an effective tool for managing problem behavior within most any setting. Importantly, it is not a technique likely to arouse moral or

ethical qualms in most personnel expected to apply it. However, with all of these factors to its credit, the procedure still appears to be, in the technical sense, a punitive intervention. On that basis, this author has concluded that the use of punishment per se may not be at issue in much of the present controversy. Given that point, a search for "alternatives to punishment" is perhaps more narrow in scope that what is truly desirable - namely a search for more, creative alternatives to those punishment procedures for which there are clear moral, ethical and/or clinical contraindications.

This paper was prepared in an attempt to develop the beginnings of a theoretical argument for a reinterpretation of these issues. As such, it opens the subject for critical discussion and hopefully points the way for further empirical study of the full session DRL technique. A reanalysis of the data from some published research (Deitz & Repp, 1973, 1974) has revealed at least one plausible alternative explanation for the findings reported therein. Since this ultimately must be seen as an empirical question, future research might begin, for example, by comparing the use of the technique with and without the end-of-session reinforcement. In any case, for the present, some definitional clarification in the public and professional debate of such matters would seem to be in order, before a legal judgment removes punishment from the behavior therapist's repertoire on the strength of an apparent abundance of "alternatives".

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Table 1.

A Comparison of DRL Upper Limits and Actual Response Frequency Means Yielding "Extra-limit Improvement Factors"

Deitz & Repp Study	DRL Upper Limit[a]	Actual Response Frequency Mean	Extra-limit Improvement Factor
1973, Exp. I	.06	.02	3.00
1973, Exp. II	.10	.07	1.40
1973, Exp. III Phase 2	.10	.05	2.00
1973, Exp. III Phase 3	.06	.03	2.00
1973, Exp. III Phase 4	.02	.005	4.00
1973, Exp. III Phase 5	.00	.00	n/a
1974, Exp. I[b]	2.66	2.43	1.09
1974, Exp. I Reversal	2.66	1.60	1.66
1974, Exp. II	2.66	.21	12.67
1974, Exp. II Reversal	2.66	.53	5.02

[a] DRL upper limits and actual response frequency means expressed in responses per minute for the 1973 results, and responses per hour for the 1974 results

[b] for ease of comparison, 1974 results converted from responses per 45 minutes to responses per hour by multiplying frequencies by a factor of 1.33.